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Hepato-testicular fusion: A rare case of undescended testis

Gamal Al-Saied [a,b,*], Medhat Ibrahim [b], Sahar Al-Nefaei [a], Riyad Thabet [a], Ayob Mohamed [a]

[a] Pediatric Surgery Department, King Abdul Aziz Specialist Hospital, Taif, Saudi Arabia
[b] Al-Azhar University, Cairo, Egypt

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ABSTRACT

Fusion of the undescended testes with splenic, renal and adrenal tissue have been described in several cases but hepato-testicular fusion is a very rare entity of undescended testes. Herein, we report a case of hepato-testicular fusion. To the best of our knowledge, this is the 2nd such case in the English literature.

1. Case report

A 14 month-old boy was referred from primary health care center to our outpatient clinic with history of empty right hemiscrotum since birth. On examination, the right hemiscrotum was undeveloped and the right testis was impalpable. The left testis was normally descended and of average size. An abdominal examination was otherwise unremarkable.

Scrotal ultrasound showed that the left testicle was seen in left hemiscrotum with no hydrocele. It was normal in shape and of good size. The right testicle was not visualized neither intra-abdominal nor in the inguinoscrotal region. For further assessment with MRI.

MRI of the pelvis and abdomen for undescended testis showed empty right hemiscrotum and right inguinal canal. There was a well circumscribed hyper intense structure seen in T_2W_I measuring 4×5 mm which may represent the right testis at the right inguinal region. The left testis was seen in left scrotum. Also, bilateral inguinal lymph nodes were seen Fig. 1.

Complete blood count, chemistry and hepatorenal function were normal. Laparoscopic orchiopexy was planned. But initial examination under general anesthesia (according to our protocol) showed palpable nubbin high in the inguinal region, so formal inguinal exploration was done initially which revealed no testicular tissue. The wound was extended laterally. The vanishing testicular vessels and vas were then traced along the lateral abdominal wall until an atrophic (4 mm) testis was seen attached to the inferio-lateral aspect of the right lobe of the liver Fig. 2. Orchidectomy was then performed and sent for histpathology.

Microscopy showed an immature testicular tissue composed of small seminiferous tubules lined by polyhidral to cuboidal cells with no evidence of spermatogenesis. The tubules were disposed into mildly edematous fibrous stroma. Leydig cells were not recognized. In one focus within the epididymis keratinous cyst, composed of stratified squamous epithelial cells replacing normal duct lining and the cavity filled up with squames (keratin flakes). There was no definite glycogen deposit within the semineferous tubule cells (PAS stain). No evidence of malignancy Fig. 3.

2. Discussion

Fusion of the undescended testes with splenic, renal and adrenal tissue have been described in several reports [1–4].

In 1996, Ferro et al. described a heterotopic liver tissue adherent to the upper pole of the testis as an incidental finding at herniotomy [5]. They attributed the presence of heterotopic liver tissue in testis

* Corresponding author. Present address: Housing area of King Abdul Aziz Specialist Hospital, Block 3F4, Flat 103, P.O. Box 10127, Taif, Saudi Arabia. Tel.: +966 532919449 (mobile); fax: +966 12 7310801.
E-mail address: gamal4a@hotmail.com (G. Al-Saied).

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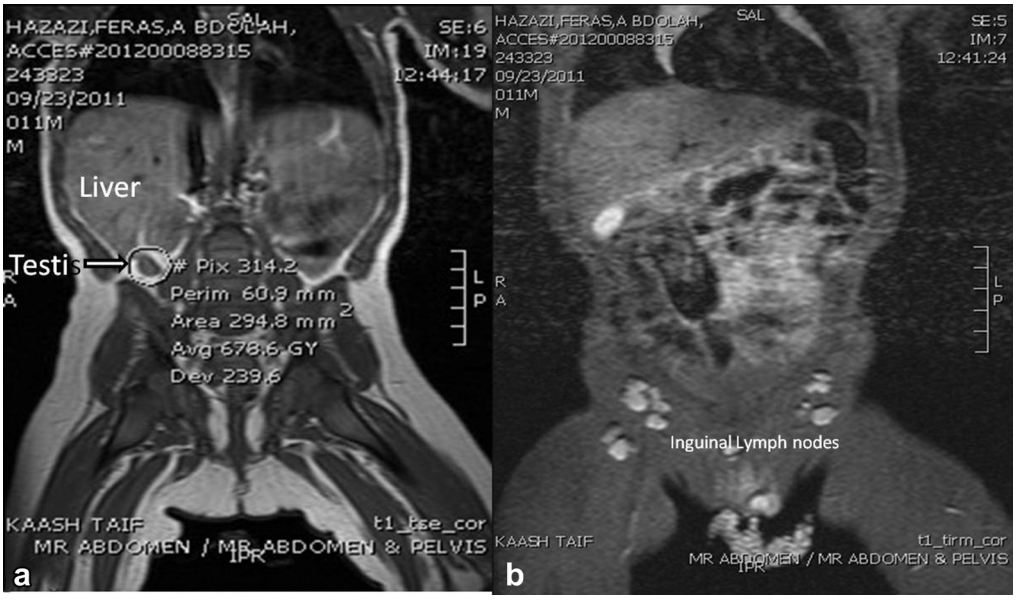

Fig. 1. (a & b) MRI of abdomen and pelvis. (a) Empty right hemiscrotum. An intra-abdominal well circumscribed hyper intense structure seen in T_2W_1 measuring 4 × 5 mm which may represent the right testis at the right inguinal region. The left testis is seen in the left hemiscrotum. (b) Bilateral inguinal lymph nodes.

to the trapping of hepatocyte aggregates in the area of peritoneum where the testis is developing [5].

In 2012, Fan et al. observed a spermatic cord-like structure was connecting the liver and right testis in a 3-month-old boy at right inguinal hernia repair. The hepatic tissue was present along the entire length of this structure [6]. In this report the testis was not directly attached to the liver but in case the testis was directly attached to the inferio-lateral aspect of the right lobe of the liver.

In 2001, Lund et al. described an atrophic (4 mm) testis which was attached to the inferio-lateral aspect of the right lobe of the liver. Such anatomical association is similar to our case. They stated that their case was the first one in English literature [7]. So our case is the 2nd such case in the English literature.

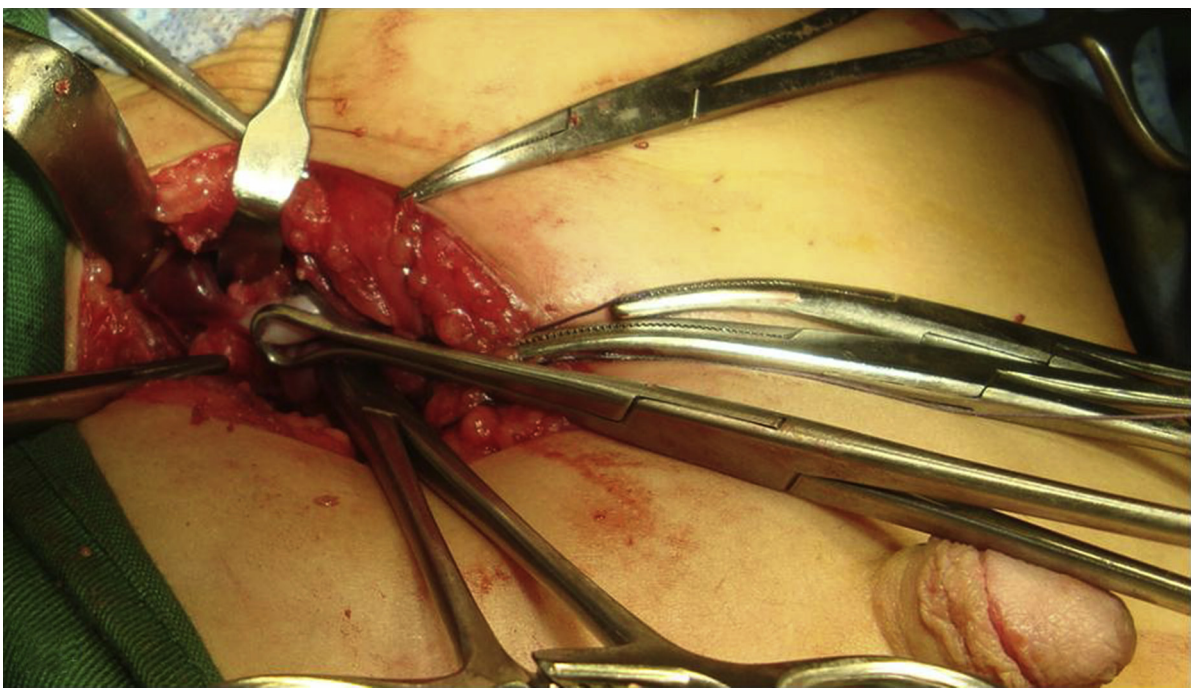

Fig. 2. An atrophic (4 mm) left testis is attached to the inferio-lateral aspect of the right lobe of the liver (held by Babcock before excision).

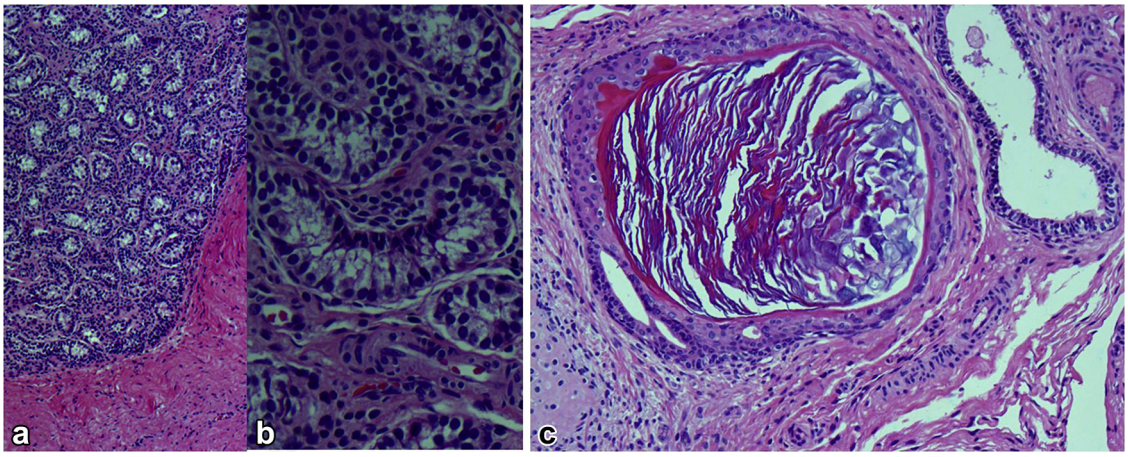

Fig. 3. (a & b) Low-and high-power views of an immature testicular tissue composed of small seminiferous tubules lined by polyhidral to cuboidal cells with no evidence of spermatogenesis. The tubules were disposed into mildly edematous fibrous stroma. Leydig cells were not recognized. No definite glycogen deposit within the semineferous tubule cells (PAS stain). No evidence of malignancy. H&E, ×4 and ×20, respectively. (c) In one focus within the epididymis keratinous cyst, composed of stratified squamous epithelial cells replacing normal duct lining and the cavity filled up with squamous (keratin flakes). H&E, ×20.

3. Conclusion

Fusion of the testis to liver either directly or via a cord-like structure is a very rare cause of cryptorchidism and the young pediatric surgeon should be aware of it as a one of etiological factors of undescended testicle.

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